

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)	
)	
Promoting Interoperability in the 700 MHz)	WT Docket No. 12-69
Commercial Spectrum)	

COMMENTS OF CTIA – THE WIRELESS ASSOCIATION®

CTIA – The Wireless Association® (“CTIA”)¹ hereby files these comments in response to the Federal Communications Commission’s (“FCC” or “Commission”) Notice of Proposed Rulemaking (“*NPRM*”) aimed at promoting interoperability in the Lower 700 MHz band and encouraging efficient use of spectrum.² The Commission should facilitate the resolution of interference among Commission licensees to ensure the deployment of innovative wireless broadband services in Lower 700 MHz spectrum for the benefit of the American public. At the heart of the current interoperability debate is the complex and difficult interference environment impacting the Lower 700 MHz band. As numerous parties have made clear in this and related proceedings, the current band plan and service rules for the 700 MHz band create a considerable risk of harmful interference from TV stations operating on Channel 51 to at least the Lower 700 MHz A Block, as well as interference from high-powered operations in the Lower 700 MHz E Block. To enhance interoperability in the Lower 700 MHz band, CTIA urges the Commission to take actions to resolve interference issues in the band.

¹ CTIA – The Wireless Association® is the international organization of the wireless communications industry for both wireless carriers and manufacturers. Membership in the organization includes Commercial Mobile Radio Service (“CMRS”) providers and manufacturers, including cellular, Advanced Wireless Service, 700 MHz, broadband PCS, and ESMR, as well as providers and manufacturers of wireless data services and products.

² *Promoting Interoperability in the 700 MHz Commercial Spectrum*, Notice of Proposed Rulemaking, FCC 12-31, ¶ 5 (2012) (“*NPRM*”).

I. THE COMMISSION SHOULD FACILITATE THE RESOLUTION OF INTERFERENCE ISSUES.

The record before the Commission in this proceeding demonstrates that the primary concern of all parties is interference into the Lower 700 MHz band. As the Commission has a statutory duty to resolve interference among licensees,³ and as resolution of interference can help to facilitate device interoperability, the Commission should work to develop an industry-based resolution of interference issues in the 700 MHz band. There are two primary interference issues facing the 700 MHz band: (1) interference from TV Channel 51 operations into the Lower 700 MHz A Block, and (2) interference from the Lower 700 MHz E Block into the Lower 700 MHz bands. A substantial record has been developed on both potential sources of interference, and both are discussed in further detail in the next section.

The Commission's authority to resolve these interference issues is clear, and CTIA urges the Commission to take action to ensure that the Lower 700 MHz band interference environment is improved to allow for commercial standards to embrace interoperability.

II. THE LOWER 700 MHZ INTERFERENCE ENVIRONMENT REQUIRES COMMISSION ACTION.

As stated above, the lengthy record in this docket demonstrates the significant interference issues that must be addressed by the Commission if broadband deployment is to be successful throughout the Lower 700 MHz band. By limiting instances of interference from Channel 51 and the E Block into nearby Lower 700 MHz blocks, the Commission can create an environment that can accommodate interoperable handsets.

³ See, e.g., 47 U.S.C. § 303(f) (stating that the Commission shall make such regulations not inconsistent with law as it may deem necessary to prevent interference between stations).

A. The Commission Must Take Steps to Resolve Interference from TV Channel 51 to the Lower 700 MHz A Block.

To resolve interference into the Lower 700 MHz band, the Commission must first and foremost take action to: (1) cease all licensing and allocation of TV Channel 51 to broadcasters, and (2) take steps to encourage relocation of Channel 51 licensees to other channels, which will allow the benefits of mobile broadband service to be deployed in the Lower 700 MHz A Block. Last year, CTIA and the Rural Cellular Association (“RCA”) took an important first step in this process with the filing of a Petition requesting that the Commission: (1) initiate a rulemaking to prohibit future licensing of broadcast television stations on Channel 51, (2) adopt a freeze on licensing activity for TV 51 applications, and (3) develop accelerated processes for relocation of Channel 51 licensees that have reached a voluntary agreement with an adjacent wireless licensee to relocate to an alternate channel.⁴ In the Petition, CTIA and RCA highlighted the challenges faced by Lower 700 MHz A Block licensees as a result of their proximity to Channel 51, which have been well developed in this and related proceedings. CTIA is pleased with the Commission’s action in August 2011 to impose an immediate freeze on the filing of new applications on Channel 51 and the processing of pending applications on this channel, as well as the Commission’s stated willingness to accommodate voluntary relocations of full power television stations on Channel 51.⁵ However, further steps are necessary for the interference challenges caused by Channel 51 to be fully resolved.

⁴ See Petition for Rulemaking and Request for Licensing Freeze by CTIA – The Wireless Association and Rural Cellular Association, RM-11626, at 1 (March 15, 2011).

⁵ *General Freeze on the Filing and Processing of Applications for Channel 51 Effective Immediately and Sixty (60) Day Amendment Window for Pending Channel 51 Low Power Television, TV Translator and Class A Applications*, Public Notice, DA 11-1428 (Aug. 22, 2011).

The Commission's placement of high-power Channel 51 broadcast operations directly adjacent to the Lower 700 MHz A block during the reallocation of Channels 52-69 to wireless broadband services has had important ramifications on wireless broadband buildout. As has been previously noted, the Commission's decision to locate high power Channel 51 broadcasting adjacent to the A Block "had a ripple effect across other users" that ultimately "inhibited future efforts."⁶ Indeed, the Commission's band plan for the lower 700 MHz band has been characterized as a "mistake[] of the past."⁷

Because Channel 51 is directly adjacent to the portion of the Lower 700 MHz A Block that is designed for Frequency Division Duplex ("FDD") base station reception, Channel 51 operations have the potential to cause significant interference to at least Lower 700 MHz A Block base stations.⁸ Further complicating the interference picture is the fact that Lower 700 MHz A Block licensees are required to maintain a desired signal to undesired signal ratio to protect TV broadcast operations on Channel 51.⁹ Indeed, Commission staff appears to have informally advised that if Lower 700 MHz A Block mobile units transmit on the former TV

⁶ *Innovation in the Broadcast Television Bands: Allocations, Channel Sharing and Improvements to VHF*, Notice of Proposed Rulemaking, FCC 10-196, at Statement of Commissioner Meredith Attwell Baker (2010).

⁷ *Id.*

⁸ Comments of Verizon Wireless, RM-11626, at 3 (April 27, 2011) ("TV 51 operations will cause interference into A Block base station receivers that are attempting to communicate with consumer handsets and other wireless devices that are transmitting at relatively low power levels.").

⁹ Comments of Verizon Wireless, RM-11592, at 8-9 (Mar. 31, 2010) ("The presence of broadcast TV services on channel 51 (692-698 MHz) also presents technical challenges for Lower A Band licensees. In establishing its rules for 700 MHz, the Commission recognized the potential for mobile systems operating at 700 MHz to cause interference to a DTV receiver operating on channel 51. As a result, it established rules requiring that Lower A Block licensees meet a minimum desired signal-to undesired signal ratio ('D/U') within the service contour of the TV broadcaster. While this might be possible for fixed wireless services, it is likely to be difficult for mobile devices to provide such protection without significantly limiting where these devices can be used.").

Channel 52 in a Time Division Duplex (“TDD”) system, these units would need to maintain a 90 mile separation from any Channel 51 transmitter.¹⁰ In a FDD system, a 60-mile geographic separation requirement apparently would apply.¹¹ Such requirements essentially preclude provision of service by Lower 700 MHz A Block licensees in any fashion in many markets across the country. While the Commission’s freeze on the acceptance and processing of new applications on TV Channel 51 should prevent this problem from getting worse, it will not help Lower 700 MHz A Block licensees currently encumbered by the presence of Channel 51 incumbents.

In fact, the interference environment in the Lower 700 MHz band has meant that Lower 700 MHz A Block licensees have faced considerable obstacles in building out their networks. For instance, an engineering analysis filed by the incumbent Channel 51 licensee in one market examined two methods of interference from DTV operations on Channel 51 to an LTE base station in the Lower 700 MHz A Block: (1) interference caused by the LTE base station receiver receiving some of the main television 51 signal, and (2) interference to base station reception caused by Channel 51 out of band emissions.¹² The study concluded that “[t]he full impact to the Lower A Block LTE system is dramatic given that the system will consist of many additional sites in multiple counties many of them experiencing extensive areas of interference from the

¹⁰ Letter from Michele C. Farquhar, Counsel to Vulcan Wireless LLC to Marlene H. Dortch, Secretary, Federal Communications Commission, RM-11626, at 1 (May 1, 2012).

¹¹ *Id.*

¹² Charles F. Ellis, PE, *Analysis of Interference to LTE Cellular Base Stations From Adjacent Channel Digital Television System WWJX, Jackson, MS* at 2 (Dec. 24, 2010) (“Ellis Engineering Analysis”), attached to Supplement to Petition for Rulemaking of George S. Flinn, Jr., RM-11618 (Dec. 29, 2010). The engineering study was based on LTE system criteria developed by Alcatel-Lucent, which was also attached to the Supplement.

[channel 51] DTV facility”¹³ and “[t]he interference will be so severe, over a very large area, that the successful deployment of the LTE system is unlikely.”¹⁴ Similarly, Cincinnati Bell Wireless and King Street Wireless have reported challenges in building facilities in the Lower 700 MHz A Block as a result of Channel 51 incumbents.¹⁵

For these reasons, CTIA supports action by the Commission to encourage the removal and relocation of TV 51 incumbent operations. Indeed, there are potentially vacant TV channels in many markets that could be used to relocate existing Channel 51 operations immediately – an option the Commission should explore to improve the current interference environment. The Commission also must consider CTIA’s proposal to adopt expedited procedures for the relocation of incumbent Channel 51 licensees where voluntary relocation agreements with affected Lower 700 MHz A Block licensees have been made. Such actions will play a critical role in the resolution of the current interference situation between Channel 51 and the Lower 700 MHz A Block.

B. Interference from High Power E Block Operations Also Adversely Affects Interoperability in the Lower 700 MHz Band.

Just as the adjacency of the Lower 700 MHz A Block and Channel 51 makes the A Block highly prone to harmful interference, the proximity of high-power operations in the Lower 700 MHz E Block creates interference concerns in the Lower 700 MHz bands as well. The

¹³ *Id.* at 6.

¹⁴ *Id.* at 1.

¹⁵ *See, e.g.*, Comments of King Street Wireless, L.P., RM-11626, at 5 (April 27, 2011) (stating that it is attempting to actively build out on its A Block spectrum, but that “Channel 51 issues appear to be present” and that “[p]rompt action on [the CTIA/RCA Petition] is necessary in order to permit King Street to engage actively and effectively with Channel 51 licensees, and to facilitate service to the public over this spectrum”); Comments of Cincinnati Bell Wireless, LLC, RM-11626, at 2 (Apr. 27, 2010) (reporting that its A Block deployment is “directly impacted” by a Channel 51 incumbent, and that “it appears that the technology does not yet exist to resolve the interference problems entirely”).

Commission recognizes the potential for this harm to occur and, accordingly, has asked in the NPRM whether it should “modify [its] rules for Lower 700 MHz D and E Block operations, using the technical conditions set forth in the AT&T/Qualcomm decision as a template.”¹⁶

Because of the interference risk posed, Commission licensees have requested that the Commission adopt technical limitations on Lower 700 MHz E Block operations that would protect Lower 700 MHz A Block operations. AT&T has asked the Commission to modify its rules to adopt power levels, out of band emissions, and antenna heights for the Lower 700 MHz E Block that are no greater than those currently permitted in the Lower 700 MHz A and B blocks.¹⁷ AT&T also proposed that the Commission only permit downlink operations in the Lower 700 MHz E Block.¹⁸ U.S. Cellular also has supported such an interference mitigation framework.¹⁹ The Commission has authority to modify its technical rules for the Lower 700 MHz E Block to address potential harmful interference from E Block operations and therefore help address the interference issues in this band.²⁰ Requirements are already in place for all of the D block licenses and those E Block licenses held by AT&T.²¹ Additionally, all of the surrounding licenses operate at lower power levels. Applying the rules uniformly across these

¹⁶ NPRM at ¶ 43.

¹⁷ Letter from Joan Marsh, AT&T to Marlene H. Dortch, FCC, WT Docket No. 11-18 (Dec. 22, 2011).

¹⁸ *Id.*

¹⁹ Letter from Grant B. Spellmeyer, United States Cellular Corporation to Marlene H. Dortch, FCC, WT Docket No. 12-69 at 2 (May 9, 2012).

²⁰ 47 U.S.C. § 316.

²¹ *Application of AT&T Inc. and Qualcomm Incorporated For Consent to Assign Licenses and Authorizations*, Order, FCC 11-188, at ¶¶ 62, 65 (2011).

blocks can help address interference concerns relating to these blocks, taking an important step toward facilitating the Commission's interoperability objectives.

III. CONCLUSION

To enhance interoperability in the Lower 700 MHz band, CTIA urges the Commission to take actions to resolve interference issues in the band.

Respectfully submitted,

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